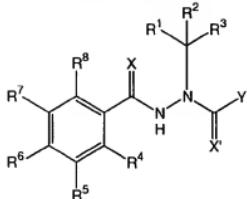


1. (Original) A compound of the general formula:



wherein X and X' are independently O or S:

Y is:

- (a) substituted or unsubstituted phenyl wherein the substituents are independently 1-5 H, (C₁-C₄)alkyl, (C₁-C₄)alkoxy, (C₂-C₄)alkenyl, halo (F, Cl, Br, I), (C₁-C₄)haloalkyl, hydroxy, amino, cyano, or nitro; or
- (b) substituted or unsubstituted 2-pyridyl, 3-pyridyl, or 4-pyridyl, wherein the substituents are independently 1-4 H, (C₁-C₄)alkyl, (C₁-C₄)alkoxy, (C₂-C₄)alkenyl, halo (F, Cl, Br, I), (C₁-C₄)haloalkyl, hydroxy, amino, cyano, or nitro;

R^1 and R^2 are independently: H; cyano; cyano-substituted or unsubstituted (C_1 - C_7) branched or straight-chain alkyl; cyano-substituted or unsubstituted (C_2 - C_7) branched or straight-chain alkenyl; cyano-substituted or unsubstituted (C_3 - C_7) branched or straight-chain alkenylalkyl; or together the valences of R^1 and R^2 form a (C_1 - C_7) cyano-substituted or unsubstituted alkylidene group ($R^1R^2C=$), wherein the sum of non-substituent carbons in R^2 and R^3 is 0-6;

R^3 is H, methyl, ethyl, n-propyl, isopropyl, or cyano;

R^4 , R^7 , and R^8 are independently: H, (C_1-C_4)alkyl, (C_1-C_4)alkoxy, (C_2-C_4)alkenyl, halo (F, Cl, Br, I), (C_1-C_4)haloalkyl, hydroxyl, amino, cyano, or nitro; and

R^5 and R^6 are independently: H, (C₁-C₄)alkyl, (C₂-C₄)alkenyl, (C₃-C₄)alkenylalkyl, halo (F, Cl, Br, I), C₁-C₄haloalkyl, (C₁-C₄)alkoxy, hydroxy, amino, cyano, nitro, or together as a linkage of the type (-OCH₂R⁹CHR¹⁰O-) form a ring with the phenyl carbons to which they are attached; wherein R⁹ and R¹⁰ are independently: H, halo, (C₁-C₃)alkyl, (C₂-C₃)alkenyl, (C₁-C₃)alkoxy(C₁-C₃)alkyl, benzoyloxy(C₁-C₃)alkyl, hydroxyl(C₁-C₃)alkyl, halo(C₁-C₃)alkyl, formyl, formyl(C₁-C₃)alkyl, cyano, cyano(C₁-C₃)alkyl.

C_3 alkyl, carboxy, carboxy(C_1 - C_2)alkyl, (C_1 - C_3)alkoxycarbonyl(C_1 - C_2)alkyl, (C_1 - C_3)alkylcarbonyl(C_1 - C_3)alkyl, (C_1 - C_3)alkanoyloxy(C_1 - C_2)alkyl, amino(C_1 - C_3)alkyl, (C_1 - C_3)alkylamino(C_1 - C_3)alkyl (- $(CH_2)_nR^6$), oximo (- $CH=N$ OH), oximo(C_1 - C_3)alkyl, (C_1 - C_3)alkoximo (- $C=NOR^4$), alkoximo(C_1 - C_3)alkyl, (C_1 - C_3)carboxamido (- $C(O)NR^6R^7$), (C_1 - C_3)carboxamido(C_1 - C_3)alkyl, (C_1 - C_3)semicarbazido (- $C=NNHC(O)NR^6R^7$), semicarbazido(C_1 - C_3)alkyl, aminocarbonyloxy (- $OC(O)NHR^8$), aminocarbonyloxy(C_1 - C_3)alkyl, pentafluorophenoxy carbonyl, pentafluorophenoxy carbonyl(C_1 - C_3)alkyl, p-toluenesulfonyloxy(C_1 - C_3)alkyl, arylsulfonyloxy(C_1 - C_3)alkyl, (C_1 - C_3)thio(C_1 - C_3)alkyl, (C_1 - C_3)alkylsulfoxido(C_1 - C_3)alkyl, (C_1 - C_3)alkylsulfonyl(C_1 - C_3)alkyl, or (C_1 - C_3)trisubstituted-siloxyl(C_1 - C_3)alkyl (- $(CH_2)_nSiOR^6R^7R^8$); wherein $n=1$ - 3 , R^6 and R^4 represent straight or branched hydrocarbon chains of the indicated length, R^7 , R^8 represent H or straight or branched hydrocarbon chains of the indicated length, R^8 represents (C_1 - C_3)alkyl or aryl optionally substituted with halo or (C_1 - C_3)alkyl, and R^1 , R^2 , R^3 , R^7 , and R^8 are independent of one another;

provided that

- i when R^9 and R^{10} are both H, or
- ii when either R^9 or R^{10} are halo, (C_1 - C_3)alkyl, (C_1 - C_3)alkoxy(C_1 - C_3)alkyl, or benzoyloxy(C_1 - C_3)alkyl, or
- iii when R^5 and R^6 do not together form a linkage of the type (- $OCHR^9CHR^{10}O$),

then the number of carbon atoms, excluding those of cyano substitution, for either or both of groups R^1 or R^2 is greater than 4, and the number of carbon atoms, excluding those of cyano substitution, for the sum of groups R^1 , R^2 , and R^3 is 10, 11, or 12.

2. (original) The compound of claim 1, wherein:
 X and X' are O;

Y is:

- (a) substituted or unsubstituted phenyl wherein the substituents are independently 1-5 H, (C_1 - C_4)alkyl, (C_1 - C_4)alkoxy, halo (F, Cl, Br, I), (C_1 - C_4)haloalkyl, cyano, or nitro;
- (b) substituted or unsubstituted 2-pyridyl, 3-pyridyl, or 4-pyridyl, wherein the substituents are independently 1-4 H, (C_1 - C_4)alkyl, (C_1 - C_4)alkoxy, halo (F, Cl, Br, I), (C_1 - C_4)haloalkyl, cyano, or nitro;

R^1 and R^2 are independently: H; cyano; cyano-substituted or unsubstituted (C_1 - C_7) branched or straight-chain alkyl; cyano-substituted or unsubstituted (C_2 - C_7) branched or straight-chain alkenyl;

cyano-substituted or unsubstituted (C₃-C₇) branched or straight-chain alkenylalkyl; or together the valences of R¹ and R² form a (C₁-C₇) cyano-substituted or unsubstituted alkylidene group (R^aR^bC=) wherein the sum of non-substituent carbons in R^a and R^b is 0-6;

R³ is H, methyl, ethyl, or cyano;

R⁴, R⁷, and R⁸ are independently: H, (C₁-C₄)alkyl, (C₁-C₄)alkoxy, halo (F, Cl, Br, I), (C₁-C₄)haloalkyl, cyano, or nitro; and

R⁵ and R⁶ are independently: H, (C₁-C₄)alkyl, halo (F, Cl, Br, I), C₁-C₄ haloalkyl, (C₁-C₄)alkoxy, hydroxy, amino, cyano, nitro, or together as a linkage of the type (-OCHR⁹CHR¹⁰O-) form a ring with the phenyl carbons to which they are attached; wherein R⁹ or R¹⁰ is H, and the alternate R⁹ or R¹⁰ is: H, halo(C₁-C₃)alkyl, formyl, formyl(C₁-C₃)alkyl, cyano, cyano(C₁-C₃)alkyl, carboxy, carboxy(C₁-C₃)alkyl, amino(C₁-C₃)alkyl, (C₁-C₃)alkylamino(C₁-C₃)alkyl (-CH₂)_nR⁵R⁶, oximo (-CH=NOH), oximo(C₁-C₃)alkyl, (C₁-C₃)alkoximo (-C=NOR⁴), alkoximo(C₁-C₃)alkyl, (C₁-C₃)carboxamido (-C(O)NR⁴R⁵), (C₁-C₃)carboxamido(C₁-C₃)alkyl, (C₁-C₃)semicarbazido (-C=NNHC(O)NR⁴R⁵), semicarbazido(C₁-C₃)alkyl, aminocarbonyloxy (-OC(O)NHR⁶), aminocarbonyloxy(C₁-C₃)alkyl, pentafluorophenoxy carbonyl, pentafluorophenoxy carbonyl(C₁-C₃)alkyl, p-toluenesulfonyloxy(C₁-C₃)alkyl, arylsulfonyloxy(C₁-C₃)alkyl, (C₁-C₃)thio(C₁-C₃)alkyl, (C₁-C₃)alkylsulfoxido(C₁-C₃)alkyl, (C₁-C₃)alkylsulfonyl(C₁-C₃)alkyl, or (C₁-C₅)trisubstituted-siloxyl(C₁-C₃)alkyl (-CH₂)_nSiOR⁴R⁵R⁶; wherein n=1-3, R⁴ and R⁵ represent straight or branched hydrocarbon chains of the indicated length, R⁶ represents (C₁-C₃)alkyl or aryl optionally substituted with halo or (C₁-C₃)alkyl, and R⁵, R⁴, R⁵, and R⁶ are independent of one another;

provided that

i when R⁹ and R¹⁰ are both H, or

ii when R⁵ and R⁶ do not together form a linkage of the type (-OCHR⁹CHR¹⁰O-),

then the number of carbon atoms, excluding those of cyano substitution, for either or both of groups R¹ or R² is greater than 4, and the number of carbon atoms, excluding those of cyano substitution, for the sum of groups R¹, R², and R³ is 10, 11, or 12.

3. (original) The compound of claim 2:

X and X' are O;

Y is:

(a) substituted or unsubstituted phenyl wherein the substituents are independently 1-5 H, (C₁-C₄)alkyl, (C₁-C₄)alkoxy, halo (F, Cl, Br, I), (C₁-C₄)haloalkyl, cyano, or nitro; or

(b) substituted or unsubstituted 2-pyridyl, 3-pyridyl, or 4-pyridyl, wherein the substituents are independently 1-4 H, (C₁-C₄)alkyl, (C₁-C₄)alkoxy, halo (F, Cl, Br, I), (C₁-C₄)haloalkyl, cyano, or nitro;

R¹ and R² are independently: H; cyano; cyano-substituted or unsubstituted (C₁-C₇) branched or straight-chain alkyl; cyano-substituted or unsubstituted (C₂-C₇) branched or straight-chain alkenyl; cyano-substituted or unsubstituted (C₃-C₇) branched or straight-chain alkenylalkyl; or together the valences of R¹ and R² form a (C₁-C₇) cyano-substituted or unsubstituted alkylidene group (R^aR^bC=) wherein the sum of non-substituent carbons in R^a and R^b is 0-6;

R³ is H, methyl, ethyl, or cyano;

R⁴, R⁷, and R⁸ are independently: H, (C₁-C₄)alkyl, (C₁-C₄)alkoxy, halo (F, Cl, Br, I), (C₁-C₄)haloalkyl, cyano, or nitro; and

R⁵ and R⁶ are independently: H, (C₁-C₄)alkyl, halo (F, Cl, Br, I), C₁-C₄ haloalkyl, (C₁-C₄)alkoxy, hydroxy, amino, cyano, nitro, or together as a linkage of the type (-OCHR⁹CHR¹⁰O-) form a ring with the phenyl carbons to which they are attached; wherein R⁹ or R¹⁰ is H, and the alternate R⁹ or R¹⁰ is: H, halo(C₁-C₃)alkyl, formyl, formyl(C₁-C₃)alkyl, cyano, cyano(C₁-C₃)alkyl, carboxy, carboxy(C₁-C₃)alkyl, amino(C₁-C₃)alkyl, (C₁-C₃)alkylamino(C₁-C₃)alkyl (-CH₂), R^aR^b, oximo (-CH=NOH), oximo(C₁-C₃)alkyl, (C₁-C₃)alkoximo (-C=NOR³), alkoxy(C₁-C₃)alkyl, (C₁-C₃)carboxamido (-C(O)NR⁴R⁵), (C₁-C₃)carboxamido(C₁-C₃)alkyl, (C₁-C₃)semicarbazido (-C=NNHC(O)NR⁶R⁷), semicarbazido(C₁-C₃)alkyl, aminocarbonyloxy (-OC(O)NHR⁸), aminocarbonyloxy(C₁-C₃)alkyl, pentafluorophenylloxycarbonyl, pentafluorophenylloxycarbonyl(C₁-C₃)alkyl, p-toluenesulfonyloxy(C₁-C₃)alkyl, arylsulfonyloxy(C₁-C₃)alkyl, (C₁-C₃)thio(C₁-C₃)alkyl, (C₁-C₃)alkylsulfoxido(C₁-C₃)alkyl, (C₁-C₃)alkylsulfonyl(C₁-C₃)alkyl, or (C₁-C₃)trisubstituted-siloxyl(C₁-C₃)alkyl (-CH₂)_nSiOR⁴R⁵R⁶; wherein n=1-3, R^a and R^b represent straight or branched hydrocarbon chains of the indicated length, R^c, R^d represent H or straight or branched hydrocarbon chains of the indicated length, R^e represents (C₁-C₃)alkyl or aryl optionally substituted with halo or (C₁-C₃)alkyl, and R^a, R^b, R^c, R^d, and R^e are independent of one another;

provided that

i when R⁹ and R¹⁰ are both H, or

ii when R⁵ and R⁶ do not together form a linkage of the type (-OCHR⁹CHR¹⁰O-),

then the number of carbon atoms, excluding those of cyano substitution, for either or both of groups R¹ or R² is greater than 4, and the number of carbon atoms, excluding those of cyano substitution, for the sum of groups R¹, R², and R³ is 10, 11, or 12; and

when R⁵ and R⁶ together as a linkage of the type (-OCHR⁹CHR¹⁰O-) form a ring with the phenyl carbons to which they are attached, and R⁹ and R¹⁰ are not both H,

then R¹ and R² are (C₁-C₄) straight or branched alkyl, and R³ is H or methyl.

4. (original) The compound of claim 3:

X and X' are O;

Y is:

(a) substituted or unsubstituted phenyl wherein the substitutents are independently 1-5 H, (C₁-C₄)alkyl, (C₁-C₄)alkoxy, halo (F, Cl, Br, I), (C₁-C₄)haloalkyl; or

(b) substituted or unsubstituted 3-pyridyl, wherein the substitutents are independently 1-4 H, (C₁-C₄)alkyl, (C₁-C₄)alkoxy, halo (F, Cl, Br, I), (C₁-C₄)haloalkyl;

R¹ and R² are independently: H; cyano; cyano-substituted or unsubstituted (C₁-C₇) branched or straight-chain alkyl; cyano-substituted or unsubstituted (C₂-C₇) branched or straight-chain alkenyl; cyano-substituted or unsubstituted (C₃-C₇) branched or straight-chain alkenylalkyl; or together the valences of R¹ and R² form a (C₁-C₇) cyano-substituted or unsubstituted alkylidene group (R^aR^bC=) wherein the sum of non-substituent carbons in R^a and R^b is 0-3;

R³ is methyl;

R⁴, R⁷, and R⁸ are independently selected from: H, (C₁-C₄)alkyl, (C₁-C₄)alkoxy, halo (F, Cl, Br, I), (C₁-C₄)haloalkyl; and

R⁵ and R⁶ are independently: H, (C₁-C₄)alkyl, halo (F, Cl, Br, I), C₁-C₄ haloalkyl, (C₁-C₄)alkoxy, or together as a linkage of the type (-OCHR⁹CHR¹⁰O-) form a ring with the phenyl carbons to which they are attached; wherein R⁹ or R¹⁰ is H, and the alternate R⁹ or R¹⁰ is: H, halo(C₁-C₂)alkyl, formyl, cyano(C₁-C₂)alkyl, carboxy, amino(C₁-C₂)alkyl, oximo (-CH=NOH), (C₁-C₃)carboxamido (-C(O)NR^dR^f), (C₁-C₂)semicarbazido (-C=NNHC(O)NR^dR^f), aminocarbonyloxy (-OC(O)NHR^d), pentafluorophenyl oxy carbonyl, p-toluenesulfonyloxy(C₁-C₃)alkyl, methylthio(C₁-C₂)alkyl, methylsulfoxido(C₁-C₂)alkyl, methylsulfonyl(C₁-C₂)alkyl, or (C₁-C₃)trisubstituted-siloxy(C₁-C₃)alkyl (-CH₂)_nSiOR^dR^eR^f); wherein n=1-3, R^d represents a straight or branched hydrocarbon chain of the indicated length, R^e, R^f represent H or straight or branched hydrocarbon chains of the indicated length,

R^8 represents (C_1-C_3) alkyl or aryl optionally substituted with halo or (C_1-C_3) alkyl, and R^c , R^d , R^e , R^f , and R^g are independent of one another;

provided that

- i) when R^9 and R^{10} are both H, or
- ii) when R^5 and R^6 do not together form a linkage of the type $(-OCHR^9CHR^{10}O-)$,

then the number of carbon atoms, excluding those of cyano substitution, for either or both of groups R^1 or R^2 is greater than 4, and the number of carbon atoms, excluding those of cyano substitution, for the sum of groups R^1 , R^2 , and R^3 is 10, 11, or 12; and

when R^5 and R^6 together as a linkage of the type $(-OCHR^9CHR^{10}O-)$ form a ring with the phenyl carbons to which they are attached, and R^9 and R^{10} are not both H,

then R^1 and R^2 are methyl.

5. (original) The compound of claim 4 selected from the group consisting of:

- a) 3,5-Dimethyl-benzoic acid N-tert-butyl-N'-(3-hydroxymethyl-5-methyl-2,3-dihydro-benzo[1,4]dioxine-6-carbonyl)-hydrazide,
- b) 3,5-Dimethyl-benzoic acid N-tert-butyl-N'-(3-(tert-butyl-dimethyl-silyloxy)methyl)-5-methyl-2,3-dihydro-benzo[1,4]dioxine-6-carbonyl)-hydrazide,
- c) 7-[N'-tert-Butyl-N'-(3,5-dimethyl-benzoyl)-hydrazinocarbonyl]-8-methyl-2,3-dihydro-benzo[1,4]dioxine-2-carboxylic acid,
- d) 7-[N'-tert-Butyl-N'-(3,5-dimethyl-benzoyl)-hydrazinocarbonyl]-8-methyl-2,3-dihydro-benzo[1,4]dioxine-2-carboxylic acid methyl ester,
- e) 3,5-Dimethyl-benzoic acid N-tert-butyl-N'-(3-semicarbazidomethyl-5-methyl-2,3-dihydro-benzo[1,4]dioxine-6-carbonyl)-hydrazide,
- f) Phenyl-carbamic acid 7-[N'-tert-butyl-N'-(3,5-dimethyl-benzoyl)-hydrazinocarbonyl]-8-methyl-2,3-dihydro-benzo[1,4]dioxin-2-ylmethyl ester,
- g) 3,5-Dimethyl-benzoic acid N'-(3-(2-amino-ethyl)-5-methyl-2,3-dihydro-benzo[1,4]dioxine-6-carbonyl)-N-tert-butyl-hydrazide,

h) 7-[N'-tert-Butyl-N'-(3,5-dimethyl-benzoyl)-hydrazinocarbonyl]-8-methyl-2,3-dihydro-benzo[1,4]dioxine-2-carboxylic acid pentafluorophenyl ester,

i) 7-[N'-tert-Butyl-N'-(3,5-dimethyl-benzoyl)-hydrazinocarbonyl]-8-methyl-2,3-dihydro-benzo[1,4]dioxine-2-carboxylic acid methylamide,

j) 3,5-Dimethyl-benzoic acid N-tert-butyl-N'-(3-formyl-5-methyl-2,3-dihydro-benzo[1,4]dioxine-6-carbonyl)-hydrazide,

k) Toluene-4-sulfonic acid 7-[N'-tert-butyl-N'-(3,5-dimethyl-benzoyl)-hydrazinocarbonyl]-8-methyl-2,3-dihydro-benzo[1,4]dioxin-2-ylmethyl ester,

l) 3,5-Dimethyl-benzoic acid N-tert-butyl-N'-(3-hydroxyimino-methyl)-5-methyl-2,3-dihydro-benzo[1,4]dioxine-6-carbonyl]-hydrazide,

m) 3,5-Dimethyl-benzoic acid N-tert-butyl-N'-(3-cyanomethyl-5-methyl-2,3-dihydro-benzo[1,4]dioxine-6-carbonyl)-hydrazide,

n) 3,5-Dimethyl-benzoic acid N-tert-butyl-N'-(5-methyl-3-methylsulfonylmethyl-2,3-dihydro-benzo[1,4]dioxine-6-carbonyl)-hydrazide,

o) 3,5-Dimethyl-benzoic acid N-tert-butyl-N'-(3-methanesulfonylmethyl-5-methyl-2,3-dihydro-benzo[1,4]dioxine-6-carbonyl)-hydrazide,

p) 3,5-Dimethyl-benzoic acid N-tert-butyl-N'-(3-fluoromethyl-5-methyl-2,3-dihydro-benzo[1,4]dioxine-6-carbonyl)-hydrazide,

q) 3,5-Dimethyl-benzoic acid N-(1-tert-butyl-heptyl)-N'-(3-methoxy-2-methyl-benzoyl)-hydrazide,

r) 3,5-Dimethyl-benzoic acid N-(1-tert-butyl-heptyl)-N'-(4-ethyl-benzoyl)-hydrazide,

s) 3,5-Dimethoxy-4-methyl-benzoic acid-N-(1-tert-butyl-heptyl)-N'-(3-methoxy-2-methyl-benzoyl)-hydrazide,

t) 3,5-Dimethoxy-4-methyl-benzoic acid-N-(1-tert-butyl-heptyl)-N'-(4-ethyl-benzoyl)-hydrazide,

u) 2-Methoxy-nicotinic acid N-(1-tert-butyl-heptyl)-N'-(4-ethyl-benzoyl)-hydrazide,

v) 3,5-Dimethyl-benzoic acid N-(1-tert-butyl-3,4,4-trimethyl-pent-2-enyl)-N'-(3-methoxy-2-methyl-benzoyl)-hydrazide,

w) 3,5-Dimethyl-benzoic acid N-(1-tert-butyl-2-cyano-vinyl)-N'-(3-methoxy-2-methyl-benzoyl)-hydrazide,

x) 3,5-Dimethyl-benzoic acid N-(1-butyl-2,2-dimethyl-pentyl)-N'-(3-methoxy-2-methyl-benzoyl)-hydrazide, and

y) 3,5-Dimethyl-benzoic acid N-(1-butyl-2,2-dimethyl-pent-4-enyl)-N'-(3-methoxy-2-methyl-benzoyl)-hydrazide.

6. - 17. (Cancelled)